REMARKS

Claims 65-67, 69, 75-90, and 92-100 are pending in the present application. In the Office Action dated October 20, 2006, claims 65-67, 69, 75-90, and 92-100 were provisionally rejected on the ground of non statutory obviousness-type double patenting as being unpatentable over claims 70-100 of co-pending U.S. Patent Application No. 10/817,495 to Hudson ("Hudson"). Claims 65-67, 69, 75-90 and 92-100 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,077,437 to Hayashi et al. ("'437 patent") as applied to claims 65 and 90 above, and in further view of U.S. Patent No. 6,106,714 to Chiu et al. ("Chiu"). Claims 65-67, 69, 75-90, and 92-100 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,352,469 to Miyazaki et al. ("Miyazaki") in view of U.S. Patent No. 6,039,649 to Roberts et al. ("Roberts").

The embodiments disclosed in the present application will now be discussed in comparison to the cited references. Of course, the discussion of the disclosed embodiments, and the discussion of the differences between the disclosed embodiments and the cited references, does not define the scope or interpretation of any of the claims. Instead, such discussed differences merely help the Examiner appreciate important claim distinctions discussed thereafter.

The applicant would like to thank the Examiner for the telephone interview conducted on December 4, 2006. During the interview the Applicant enquired about inserting language in the claims that would make the slurry part of the structure. We did not come to an agreement on language that would accomplish this. In addition, the Applicant requested the opportunity to amend the claims after final rejection to remove the word "for" in order to put the claims in better condition for appeal. The Examiner did not allow the amendment. Again, the Applicant would like to thank the Examiner for the opportunity to conduct a telephone interview.

Nonstatutory Double Patenting Rejection

The Applicant elects to wait to determine whether a terminal disclaimer will be required depending on the patentability of the claims in this application and the claims in co-pending Application No. 10/817,495.

Rejections Under 35 U.S.C. 103(a)

The present application is generally directed to a system for providing planarizing slurries for planarizing microelectronic-device substrate assemblies in mechanical and/or chemical-

mechanical planarization (CMP) processes. In one embodiment, the slurry manufacturing assembly includes two separate reservoirs, a first reservoir and a second reservoir, each containing a fresh (i.e., not previously used) solution of slurry with a plurality of abrasive particles. The first reservoir contains abrasive particles of a first size, and the second reservoir contains abrasive particles of a second size, the first particle size being different from the second. In addition, each of the reservoirs is coupled through a respective feed line to removal units, which selectively remove a specified size of selected particles. A combination of the first and second solutions forms an abrasive slurry in a combination feed line. In another embodiment, at least on mixer is configured to mix the first and second solutions and a conduit through which the first and second solutions are passed to form a turbulent zone.

The Examiner has cited the Hayashi et al.'437 reference in view of Chiu et al. The Hayashi reference disclose a planarizing apparatus including a slurry manufacturing assembly for recycling a used planarizing solution. The apparatus in the Hayashi reference discloses a planarizing apparatus that filters a recycled slurry and mixes the recycled slurry with a fresh unfiltered slurry. The Examiner acknowledges that the fresh slurry line in the Hayashi reference does not contain a filter. The Examiner contends, however, that the Chiu reference teaches using a filter in a feed line whether the slurry is fresh or recycled. However, the Chiu reference does not disclose whether the slurry being filtered is fresh or recycled. The Examiner contends that because the figures in the Chiu reference show slurry being supplied to the polishing pad from a slurry supply machine and no recycle line is depicted in the figures, that alone, indicates that the slurry is fresh slurry. The problem with this argument is that the figures in the Chiu reference do not show either where the slurry is coming form or how any of the slurry is exiting from the polishing pad. The figures do not depict a drain, collection bucket, or recycle line. Therefore, the drawings are clearly not intended to show the manner in which slurry is supplied to and removed from the polishing pad. Thus, the Chiu reference does not fairly teach the slurry is fresh slurry. The Examiner bears the burden of establishing a prima facie case of obviousness, which requires that the prior art references teach or suggest all limitations. Because the Chiu reference fails to teach that the slurry is fresh, the Hayashi reference in view of the Chiu reference fails to teach all limitations.

Additionally, both the Hayashi and the Chiu references fail to disclose or fairly suggest a mixer configured to mix the first and second solutions and a conduit through which the first and second solutions are passed to form a turbulent zone. Moreover, the Hayashi and Chiu

references do not disclose or fairly suggest that the slurry assembly contains separate solutions with different sized particles. Rather, the Hayashi reference discloses a bimodal distribution of particle sizes within one solution of slurry.

The Examiner cited the Miyazaki et al. reference in view of the Roberts et al. reference. The Miyazaki reference discloses a polishing method and apparatus that supplies slurry without large particles by using either vibration or filtration. The Examiner contends that figure 10 and the lines describing figure 9 disclose using multiple feed lines of slurry for a CMP process. Figure 10 discloses a primary canister containing slurry and a secondary canister containing slurry with a pipe that filters slurry from the primary canister into the secondary canister. A tube takes the slurry from the secondary canister to the substrate to be polished. Figure 10 fails to disclose or fairly suggest a second feed line and a second removal unit coupled to the second feed line; and therefore, also, fails to suggest a combination feed line coupled to a first and second removal unit containing a combined flow of the first and second solutions.

Looking now at figure 9, the Miyazaki reference discloses two separate containers containing slurry, two separate feed lines, and a filter attached to each feed line. Figure 9 discloses a switchgear valve at the point the two separate feed lines connect to a single feed line. The reference does not define switchgear valve; however, from the figure and the text it appears to be a three way valve that when it is open for one feed line it is closed for the other feed line. The text of the reference supports this at column 14 lines 1-5, which states that "the slurry 3 contained in the *selected one of the canisters* 4...can be fed to the surface, to be polished...by using the switchgear type valve 42." (Emphasis added). Because one canister is selected to be fed to the polishing pad, the valve must be closed to the other canister. Furthermore, column 14 lines 11-17 state that the purpose of the valve is to allow for adding or replacing slurry without interrupting polishing operations. This indicates that the valve is not used to combine the two slurries, but rather, is used to allow for one solution container to be a backup for the other solution container. Therefore, the Miyazaki reference fails to disclose or suggest a combination feed line containing a combined flow of the first and second solutions.

The Roberts reference discloses a single polishing slurry solution comprising a multi-modal particle distribution. This reference fails to make up for the fact that the Miyazaki reference fails to disclose a combination feed line. Additionally, both the Miyazaki and the Roberts

references fail to disclose or fairly suggest a mixer configured to mix the first and second solutions and a conduit through which the first and second solutions are passed to form a turbulent zone.

Turning now to the claims, the patentably distinct differences between the cited references and the claim language will be specifically pointed out. Amended independent claims 65 and 90 recite, in part (see claim), a first feed line containing a first solution, the first solution not having been previously used to planarize a microelectronic substrate and a first removal unit coupled to the first feed line. Neither the Hayashi nor the Chiu references discloses this limitation. As alluded to above, the Hayashi reference discloses using a filter with recycled slurry and the Chiu reference discloses using a filter but fails to disclose whether the slurry is fresh. In contrast, presently amended independent claims 65 and 90 require that the first solution has not been previously used to planarize a microelectronic substrate.

In addition, claims 65 and 90 recite, in part (see claim), a first feed line for containing a solution having a plurality of first abrasive particles of a first size and a second feed line containing a solution having a plurality of second abrasive particles of a second size, the first abrasive particles size being different than the second abrasive particles size. Neither the Hayashi nor the Chiu references disclose this limitation. The Hayashi reference discloses a bimodal distribution of particle sizes within one solution of slurry. In contrast, the claims require two separate solutions each containing its own particle size, where the two particle sizes are different. Both the Hayashi and Chiu references fails to disclose this limitation and claims 65 and 90 require it. Therefore, presently amended independent claims 65 and 90 are allowable over the Hayashi and Chiu references.

Claims 65 and 90 recite, in part (see claim), a combination feed line operatively coupled to a first removal unit and a second removal unit containing a combined flow of the first and second solutions. Neither the Miyazaki nor the Roberts references disclose this limitation. As alluded to above, the Miyazaki reference discloses a switchgear valve that is used to feed the slurry contained in one of the selected canisters to the polishing pad. In addition, the Roberts reference fails to make up for this absent limitation. In contrast, claims 65 and 90 require a combination feed line operatively coupled to a first removal unit and a second removal unit containing a combined flow of the first and second solutions. Therefore, presently amended independent claims 65 and 90 are allowable over the Miyazaki and Roberts references.

Claim 90 recites, in part, "at least one of a mixer configured to mix the first and second solutions and a conduit through which the first and second solutions are passed to form a turbulent zone." None of the Hayashi, Chiu, Miyazaki or the Roberts references discloses or fairly suggests the above limitation. The Hayashi reference discloses mixing the recycled slurry with the fresh slurry; however, it does not disclose a conduit through which the two slurries are passed to form a turbulent zone. In contrast, claim 90 requires a conduit through which the first and second solutions are passed to form a turbulent zone. Therefore, independent claim 90 is allowable over all of the cited references.

The Examiner contends that the slurry being filtered in the claimed apparatus is a process material; and that since the claim is for an apparatus, the slurry is not of significance in determining patentability. The Applicant disagrees that the slurry is the process material. Rather, the device substrates are the process material. The slurry reservoirs containing the slurry are part of the disclosed system.

Claims depending from claims 65 and 90 are also allowable due to depending from an allowable base claim and further in view of the additional limitations recited in the dependent claims.

All of the claims remaining in the application are clearly allowable. Favorable consideration and a timely Notice of Allowance are earnestly solicited.

Respectfully submitted,

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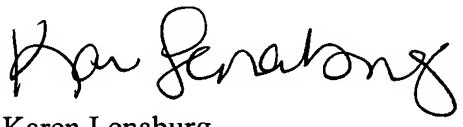

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